F.O. 881 / 6970

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Printed for the use of the Foreign Office. December 21, 1897.

CONFIDENTIAL.

(6970.)

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Major Macdonald to the Marquess of Salisbury.—(*Received October* 15.)

(No. 10.)

My Lord, *Fort Smith, Kikuyu, September* 1, 1897.

I HAVE the honour to forward to your Lordship a copy of the Staff Diary of the Juba expedition and Memoranda by Captain Austin, R.E., who is in command of the waggons, and by Lieutenant Macdonald, 14th Sikhs, who is in command of the Indian carts.

I have the honour to suggest that your Lordship will forward the inclosures to the Director of Military Intelligence, to whom they might be of use.

I have, &c.

(Signed) J. R. L. MACDONALD.

Inclosure 1.

Staff Diary of Juba Expedition from July 22 *to August* 16, 1897.

July 1897.

July 22.—Marched a distance of about 5 miles up the McKinnon Road. The first $2\frac{1}{2}$ miles from the Railhead Camp was by a branch road meeting the McKinnon Road at Matagoa Fundi, where after rain there is a small pool of water, with muddy bottom, much fouled by game and hardly fit for Europeans to drink. The camp this night was pitched by side of road about $2\frac{1}{2}$ miles beyond the pool, the water supply being carried from Railhead.

July 23.—Marched to Maungu, about 13 miles, through thick bush scrub all the way. Road in good order. The road at present, instead of passing as formerly over the Kotal between Maungu Mkubwa (Large Maungu) and Maungu Kidogo (Small Maungu), now skirts the base of the hill and the camp is at foot of northern extremity. The water supply is very precarious, as, except after heavy rain the Ungurunga (Rock Pool) about 300 feet above the camp is generally dry. This necessitates sending for water from the Ungurunga above the old camping ground, which is some 5 miles distant and almost due south and at a height of 1,000 feet above the camp. This pool in Maungu Mkubwa, though larger, is also dependent for its supply on rain, and cannot be relied on after a spell of dry weather.

July 24.—Marched to Wilson's Camp (Campi Bwana Taiyari), about 9 miles. Road in good order all the way. Country round camp open park land and plenty of grass. No water obtainable at the camp itself, it being obtained from a small stream at the foot of Ndara Hill (Camp Mkuyuni) about $3\frac{1}{2}$ miles south-west of Wilson's Camp. Very limited supply of water in dry season, and that of inferior quality; it had to be fetched by porters carrying mussuchs and water bottles. It would seem desirable to divert the road, from a point 3 miles nearer Maungu, straight to Camp Mkuyuni and thence rejoin the present road some 3 miles north of Wilson's Camp. This road would be a great benefit to heavily-laden caravans going up-country, as there is no water along the present route between Maungu and the Voi River (17 miles).

July 25.—Marched to Voi River, distance about 8 miles. First 5 miles easy descent from Wilson's Camp along good open road. Last 3 miles very broken and three bad drifts with sandy beds, which made it necessary to man-handle some of the waggons. The passage of these drifts could be easily improved by constructing proper ramps on either side; a working party of fifty men should be able to carry out necessary improvements in about ten days.

The main streams of Voi River are crossed by two trestle brides, which require strengthening for heavy traffic. Main stream of Voi River is about 15 feet wide and

from 1 foot to 3 feet deep; current, 4 miles per hour. Water good. Smith Mackenzie and Co. have a small store on north bank of river, where ordinary native food, such as "mahindi," is procurable in small quantities.

July 26.—To Ndi, distance about 10 miles. Bad stretch of road about 3 miles from Voi River; about half-a-mile is over rough rocky ground with two or three small drifts. Heavy pull up to Ndi for the last 1½ miles. At Ndi are a Government post, post-office, and store; with a week's notice 20,000 lbs. of food might be reckoned on. Water supply from stream about 5 feet wide and 10 inches deep; rate, 2½ miles an hour. Water for drinking is obtained from this stream near its source at back of Station Post, but it is of inferior quality and reported to give Black-water fever. A small supply of fresh vegetables and fruit can be obtained.

July 27.—Caravan remained at Ndi, waiting arrival of Corporal Simmons in charge of G.S. waggons and double carts. Four of these did not reach camp to-night. All teams of bullocks belonging to this portion of the caravan much distressed; waggons, &c., quite unsuitable for this country and drivers inexperienced. Decided to lighten loads and place Corporal Simmons' caravan under Captain Austin assisted by Lieutenant Tracey, as corporal Corporal Simmons sick with with fever. Partly adjusted theodolite in afternoon. Decided to leave a number of loads at Ndi Government Post to be picked up by Corporal Brodie. It was also decided that the Indian carts and bullocks with the Sikh detachment should be placed under the command of Lieutenant Macdonald assisted by Lieutenant Bright. This was done to enable the bullock transport to move independently of the main body and so take advantage of the cool mornings and evenings.

July 28.—Captain Austin took over Corporal Simmons' caravan and took a number of loads off each waggon or double cart, these loads being left stowed in the Government Post at Ndi. The loads on the Indian carts were also rearranged, and both these portions of the caravan occupied camping grounds for the night separate from the main body. Thirty-eight extra loads of "mahindi" were purchased at the Government store, and twenty-four distributed as "posha" to the porters, askari, &c. A party of six askari and porters, who had been sent into the Ndi hills on the 26th instant to purchase eggs, vegetables, &c., from the Wataita inhabitants, returned in the evening with seventy-five eggs, some pumpkins, and a few fowls. Twelve goats were purchased from the Government store-keeper. The wind blew strongly from south-south-west during the night, and slight rain fell every twenty-four hours during the stay at Ndi.

July 29.—From Ndi to camp 3 miles south of Yamanyani, distance about 11 miles. Dense shrub along both sides of road. Camp pitched by a small rocky hill where a little water was found in a hole, not enough to allow of baths. Road good—only one bad drift about 3 miles after leaving Ndi. Fine view over surrounding country on all sides from rocky hill above camp. I.D. map of Uganda, scale 25 miles equals 1 inch, apparently wrong in showing escarpment along both sides of the Sabaki, as the escarpment can be seen all along northern edge of river and appears to be about 400 feet high almost as far as the detached hills called [?]; along the southern bank there is no escarpment, and conntry slopes gradually down to river from south.

July 30.—Marched to Tsavo River, 10½ miles. Dense scrub still continuous on both sides of road. March took about four hours. Tsavo River very high, apparently caused by melting of snow towards Kilimanjaro Mountains. River 30 feet to 35 feet broad, with banks 3 feet to 9 feet high; water from 3 feet to 6 feet deep with deeper holes at intervals; rate in its present state from 4 to 5 miles per hour, and water muddy. Ford where road meets river is now about 2 feet 6 inches deep, and the Indian bullock carts could just cross without unloading and without wetting the loads. Observation for time were taken in evening with 3″ theodolite.

July 31.—Remained in camp on right bank of Tsavo River and adjusted theodolite. Observations for time were taken with 6″ transit in evening, and food arrangements for caravan settled.

August 1897.

August 1.—Sunday. Observations for time and compass error taken in morning and everything in camp except mess tent moved across river preparatory to marching in afternoon. Started for Ngomeni Camp at 2·30 P.M.—distance about 8 miles—and arrived about 5.30 P.M.; several drifts about 3 miles after leaving Tsavo River, road good otherwise, passes through thick scrub. Found no water in hole at Gnomeni, so pushed on another mile to a place where water was expected in rocky hill about 300 yards to right of road, but water hole was d Only water available was that carried

in men's water-bottles. Red soil still continued. Apparently much iron in the rocky hills, which would probably affect compasses.

August 2.—To Kenani Camp, about 8 miles through dense scrub. Road good—no drifts. Large water hole at Kenani, but very little water in it on this day, and what there is inferior in quality and much fouled by wild animals. At certain seasons of the year this pool, which is about 80 yards long and 30 yards wide, is reported to hold water to a depth of 3 or 4 feet; but at present there is only a small patch of water about 5 yards by 3 yards, with a depth of 8 to 10 inches. The remainder of pool is thick mud and weeds. A well in camp close to pool gives a fair supply of water, which is pretty good in quality.

August 3.—To Mtoto-Ndi (Mtoto-Andei R.) about 12 miles. About 4 miles from Kenani country becomes more open on both sides of road, and it is possible to see in places up to 400 or 500 yards between scattered trees and bushes. Much grass 2 or 3 feet high. A certain amount of game to be found within 3 or 4 miles of road, oryx antelope among other sorts. This [?] or more open country continues to within 2 miles of Mtoto-Ndi, where dense bush again occurs on both sides of road. One or two drifts on south-east side of river, while the actual crossing is very bad, the road down to the ford on both sides being very steep with a bend just as the river is reached. River from 10 to 12 feet wide and 10 inches deep; banks about 15 feet high; current about 2 miles per hour. Water clear, hard, and fairly good for drinking, but must be boiled. Best camp on north-west side of river about 400 yards from crossing. Cloudy all day and sun only apparent for a few minutes about 11 A.M.

August 4.—To Derajani about 10 miles. First 3 or 4 miles through high grass and clumps of bushes with a few trees; after that dense jungle on both sides of road. Road is in bad condition for last 4 miles before reaching the river; two or three bad drifts about 2 miles from south-east. River 10 to 12 feet wide, 6 inches to 1 ft. 6 in. deep with small pools. Current about 2 miles an hour. Road crosses river by ford with rocky bottom; rather slippery ramp on north-west side of river, which has banks from 15 feet to 20 feet high.

August 5.—To Misongoleni about 7 miles. Forty more porters joined from Mombasa last night. Road very bad in places, and three or four bad drifts, especially about 5th and 6th miles. Country more open and signs of cultivation. Hollow logs for bees hung in trees by natives. A few eggs and chickens to be got at Misongoleni.

August 6.—To Kibwezi about 8 miles. Road very rough in places, especially rocky near Kibwezi, which is a small Mission station. Mission doctor and gardener, and also head-quarters of District Officer. Small store at Kibwezi kept by a Goanese, where a few tinned stores, tobacco, candles, &c., can be purchased. Very good water supply. Stream issues straight out lava rock—8 feet wide 1 foot deep, and current 3 miles per hour. Clear stony bottom.

August 7.—To Makindo River about 16 miles; first $1\frac{1}{2}$ miles from Kibwezi very rocky and bad for carts. After passing over col between two hills 5 miles north-west of Kibwezi, the country becomes more open on both sides of road, and road which is a mere track is easy for waggons and carts. Seven miles before reaching Makindo River country very open, long, gentle, undulating slopes covered with grass rather dry and burnt up. Road crosses Makindo River by small bridge. Stream 8 to 10 feet wide, 1 to 2 feet deep. Current sluggish and water not very good for drinking owing to rank vegetation in river. Large quantity of game in vicinity, viz., hartebeeste, wildebeeste, and lions.

August 8.—Remained in camp on north-west side of Makindo River.

August 9.—Returned to Kibwezi to see Major Macdonald, who had been left behind with fever. Poured with rain all afternoon. Estimated at half an inch.

August 10.—Camp remained at Makindo River. Seventy-two more porters reached Kibwezi from Mombasa.

August 11.—Moved Major Macdonald to camp one-third way towards Makindo River.

August 12.—Whole caravan reunited at Makindo River, as well as the heavy war guns and carts under Captain Austin. Observations taken in evening for watch error.

August 13.—Camp stationary at Makindo River and all four companies of Swahilis brought up to full strength of 100 rank and file each. Captain Austin with G.S. waggons marched in evening for Kiboko River.

August 14.—Marched to Kiboko River about 9 miles. Road good. Country open on both sides of road until within 1 mile of Kiboko River; then thick patches of jungle and aloe. Kiboko River is divided into two branches; about $8\frac{1}{2}$ miles from Makindo

River road crosses main stream by a ford with stony bottom and about 20 feet wide. Stream generally 9 to 15 feet wide and 1 to 2 feet deep. Current about 2 miles an hour. About half a-mile to north-west road crosses branch stream by a small bridge. Water at crossing about 25 feet wide with pools several feet deep. Current sluggish. Banks 10 to 12 feet high and much overgrown with Nile grass, a kind of pampas grass and rushes. Rhinocerus, waterbuck, and ostriches seen from camp. Apparently plenty of game in vicinity.

August 15.—To Campi à Simba about 9 miles. Country very open on both sides of road. Crossed one or two nullahs, where water could apparently be easily obtained by digging down a few feet. Country dotted with small conical-shaped hills, nearly all of volcanic origin. Just before reaching camp crossed a small river, which natives call River Simba; much overgrown with reeds and bushes: muddy bottom. Water bad. River consists of a series of small pools of water connected by narrow channel 8 to 10 feet wide and 1 foot deep. Scarcely any current.

August 16.—To Mauwi Camp 14½ miles across very open country; plenty of grass; hardly a single tree or bush. Two lions seen on the march, also some rhinocerus and numerous antelope.

(Signed) E. M. WOODWARD, *Captain*,
The Leicestershire Regiment, 2nd in Command.

August 31, 1897.

Inclosure 2.

Report on the Road from Taru Desert to Kikuyu as regards suitability for heavy Waggons.

THE waggons of a heavy type accompanying Major Macdonald's expedition from Railhead on the Taru Desert numbered seventeen in all, and consisted of the following:—

(*a.*) Nine double waggons with teams of ten oxen, each capable of carrying from fifty to sixty loads.

(*b.*) Two general service hooded waggons with teams of ten oxen, each capable of carrying fifty loads.

(*c.*) Five general service (Uganda) waggons, coffin shaped and open, with teams of twelve oxen, capable of carrying fifty to sixty loads, and

(*d.*) One small single waggon with three pair of oxen, and carrying twenty-five to thirty loads.

N.B.—A load is taken as 65 lbs., *i.e.*, a porter's load.

July 21.—The waggons left Railhead Camp on the 21st July, under the charge of a non-commissioned officer of the Royal Engineers, employed under the late Captain Sclater, R.E.

The road to Mount Maungu (17 miles) requires little description as there are no difficulties to be met with until a mile before the camp is reached. Here the grade becomes somewhat steep, and as the ground is of a loose sandy nature, the pull-up to the camp is a heavy strain on the oxen.

July 23.—The waggons reached Maungu about mid-day on the 23rd, but the absence of water in the Ungurunga above camp necessitated the waggons pushing on towards the Voi River in the afternoon, after a short halt and rest. Water had been carried up to this point from Railhead, but as the supply was now exhausted, it was imperative to reach the Voi (17 miles) as soon as possible.

The oxen marched until dark, and continued early next morning.

July 24.—As far as Wilson's Camp (9 miles from Maungu) the road is excellent for waggons, but no water is obtained until the Voi is reached. 2½ to 3 miles from the river the road becomes very bad indeed for heavy waggons, as it passes over a succession of steep-banked drifts with deep sandy bottoms.

July 25.—The majority of the teams were quite unable to draw the waggons up these, and each in turn had to be man-handled. This was a long and laborious undertaking, and several of the waggons were not into camp until past 8 that evening. The two main streams of the Voi are spanned by wooden trestle bridges, but as these have been up for some time they require strengthening.

July 26.—As the oxen were considerably exhausted after their heavy work since leaving Railhead, as their supply of water and time for grazing had been very limited, they were allowed to halt a day at the Voi, where there is plenty of both, to regain strength.

July 27.—The following day they marched for Ndi (10 miles), but several of the waggons did not arrive until late in the evening. With the exception of a rough, rocky extent of country about half-a-mile in length, some $2\frac{1}{2}$ miles from the Voi, the road is good for waggons until the base of the slope of the Ndi Hills is reached. Here the ascent to the camping-ground is very long and becomes too steep to be anything but a great strain on the oxen. The waggons up to this point had travelled very unsatisfactorily, and as the non-commissioned officer in charge was down with fever, and it was considered most important that the waggons should remain in touch with the main body, several changes were carried out at Ndi. Ndi.

July 28.—All the larger waggons, which had up to this time been carrying fifty loads each, had their loads reduced to forty, and Captain Austin with Lieutenant Tracey to assist him, was placed in charge of the caravan. There is plenty of grazing and water at Ndi, so the oxen were given a good long rest until the afternoon of the 29th before a start was made for the Tzavo River.

July 29.—As the march to the Tzavo is between 21 and 22 miles in length, and no water is obtainable between in the dry season, it was decided to water the animals before starting, march as far as possible during the afternoon and evening, carrying water for cooking purposes for the night, and then to make a very early start in the morning to try and reach the Tzavo by midday. A start was made at 2 P.M., and with the exception of a bad drift with circuitous approach, deep sandy bottom, and stiff pull the far side, about 4 miles from Ndi, no further obstacle was met with. Each waggon had to be man-handled in turn over the drift, which was a long business; but as the road was good beyond, some $7\frac{1}{2}$ miles were covered before dark.

July 30.—The road from the night's camp to Tzavo (14 miles) is good, and as a very early start was made, the river was reached by midday. Tzavo River.

July 31.—The river was crossed the following day, and proved less of an obstacle than anticipated, as though from 25 to 30 yards wide and $2\frac{1}{2}$ feet deep, the waggons were all taken across in two hours, with the aid of men man-handling the wheels, &c.

August 1.—As no water existed between the Tzavo and Kenani (18 miles) a start was not made until the following afternoon, when a distance of 5 miles was covered before dark. The road for the first few miles was very bad, and several difficult drifts had to be negotiated by man-handling the waggons.

August 2.—Two or three small drifts delayed the waggons early the following morning, but for the last 11 miles to Kenani the road is good, and the camping-ground was reached soon after midday. Kenani.

August 3.—From Kenani to the Mtoto (river) Andei—12 miles. The road is an easy one for waggons until within a mile of the river. Here there is a steep descent, followed by a short, heavy rise out of a nullah bed, which the oxen were unable to overcome without help. Thence to the river is easy. The river crossing, however, is difficult, and it was found impossible to attempt it without making some improvements. The descent to the river is long and steep, the bottom of the stream very muddy, and the usual ascent the far side very circuitous. It was useless trying the circuitous route out of the river bed with heavily-laden waggons drawn by long teams of ten and twelve oxen, so it was abandoned. Mtoto Andei.

August 4.—The following day it was decided to construct a small sloping bridge over the stream. This enabled the waggons to adopt a straight pull up the opposite bank, as the mud of the stream was avoided, and the gradient much reduced.

August 5.—A start was made for Derajani (10 miles) on the morning of the 5th, and all the waggons were over the Andei River and on the high ground beyond two hours after the crossing was undertaken. The remainder of the march, however, occupied no less than eleven hours, in spite of the first half being easy, and the waggons proceeding at a good steady pace. The last 4 or 5 miles of the road is very bad indeed, being a long series of steep-banked watercourses, up each of which the waggons had to be man-handled in turn. It was 6 P.M. therefore before the last waggon had reached the river at the Derajani camp. The river itself is crossed without difficulty as the bottom is a fine flat rocky bed over which the water flows in a broad shallow channel. The rise to the camping-ground is steep, and the exhausted cattle had all to be assisted by man-handling. Derajani.

August 6th.—As there was no time for grazing, a later start was made the following morning to enable the oxen to have some three hours' feed before starting for Misongoleni (6 miles). Although only some 6 miles in length, the waggons occupied eight Misongoleni.

hours in covering the distance, owing to the existence of four or five bad nullahs, during the latter half of the march which delayed them terribly.

As water and grazing is abundant at Misongoleni and the oxen were thoroughly exhausted, it was decided to give them a full day's rest, and on the second day merely to cross the river in the afternoon.

August 8.—This was carried out on the evening of the 8th August. The approach to the river is rough and long, and although the bottom is muddy, the rise the far side is easy, so the waggons were all over in little more than an hour and a-half.

Kibwezi.

August. 9.—An early start was made for Kibwezi (8 miles) next morning; but again four or five bad nullahs, mostly with long steep descents and ascents the far side, delayed the waggons considerably, as it took over an hour to get the seventeen waggons man-handled over each. About half-a-mile before the Mission station is reached a rough outcrop of lava boulders is met with, which extends right up to the station, and is a very considerable obstacle to heavy waggons.

A halt was made at Kibwezi on the 10th.

Bwinzau.

August 11.—As the march from Kibwezi to Mto Makindo is 17 miles in length, and no water obtainable between the two places, a short march of 5 miles was made on the afternoon of the 11th to the far side of Mount Bwinzau. The road is easy, except for the first mile out, where again the lava boulders delay heavy waggons considerably. Thence there is an easy ride over Bwinzau col and an easy descent the other side.

Mto Makindo.

August 12. From Bwinzau to Mto Makindo (12 miles) the road is excellent for waggons and presents no difficulties whatever, as the country becomes more open, and the 200-mile belt of bush from the coast is at last passed.

Kiboko (Hippo) River.

August 13.—The moon now being favourable it was decided to take advantage of it, as oxen travel far better by night than during the day. A start was therefore made for the Kiboko River on the afternoon of the 13th at 5 p.m. By 9, the waggons travelling at a fine pace, had covered a distance of 9 miles over an undulating grassy plain and reached the Kiboko River, where they received their first check. The crossing is difficult owing to the rough lava bottom of the stream, and the slippery nature of the banks.

As the fly is reputed to be present here, it was decided to push on for another mile, through a glade of tall trees, and to camp on the far bank of a branch stream that flows into the Kiboko River. The intermediate ground is much broken up in parts with lava boulders, and the crossing of the branch stream proved laborious, owing to the steep pull up the far bank.

Kampi-ya-Simba (Camp of Lions).

August 14.—From the Kiboko River to the Kampi-Ya-Simba (camp of lions) the road passing over undulating grass country is excellent for waggons. There are no obstacles for the first 8 miles when a nullah bed with heavy sandy bottom is met with; and about a mile further on a small outcrop of lava appears on the top of the ridge overlooking the camp.

The river crossing at the camping ground (10 miles) is difficult as the bottom is muddy, and heavy waggons sink into it.

Mto ya Mawe (River of Stones).

August 15.—The distance from Kampi-ya-Simba to Mwani station is 18 miles; but this may conveniently be divided into two by marching 14 miles to the Mto ya Mawe (the river of stones) where water is obtainable in large rocky pools, and then doing the remaining 4 miles the next day to Mwani. For the first 11 miles of the march the road runs over undulating grass country which presents no difficulties, until a deep nullah with long steep descent and ascent is met with, and here the first check occurred.

Mwani.

August 16.—For the next 3 miles the road runs through undulating park land until the river is reached. The actual crossing over a bed of solid rock is rough but comparatively easy; the ascent the far side is, however, heavy though only short in length. The remaining 4 miles to Mwani is a good one for waggons through open park land.

Kibaoni

August 19.—From Mwani to Kampi Kibaoni is a distance of 13 miles, for the most part over undulating park land. About 8 miles from Mwani there is a bad nullah with circuitous approach and an awkward drop on the off side, hidden by long coarse grass and bushes.

Care is required in manipulating the turn in the descent to the bed, two of the off wheels of one of the large waggons going too large round the bend went over the drop, and the waggon had to be completely unloaded, the oxen taken out, and hauled on to the track again by drag ropes, &c. Another nullah is met with about a mile on, but is not difficult, and the remainder of the road to Kibaoni is easy.

August 20.— From Kibaoni to camp at Kilima Kiu is a most exhausting one for cattle, there being a rise of no less than 1,200 feet in a distance of 13 miles. For the first 5 miles the track is full of holes and depressions, the ground in parts being so soft and rotten that it completely gave way under one of the waggons, which had practically to be dug out. Kilima Kiu.

The rise is, up to this point, very gradual and insignificant. There a nullah is crossed and a circuitous ascent made up the sides of the valley, the road being cut for the next 5 or 6 miles along the side slopes of the low hills The ascent is pretty steady and stiff throughout, and in five or six places, where the road is built up to cross hill torrent courses, the turns are very sharp with bad drops on the lower side. For safety's sake it was considered advisable to unyoke the three leading pairs of oxen of each waggon, and to assist the remainder by man-handling the waggons round these turns, which answered very satisfactorily.

The last 2 miles to the Kiu Camp the road passes over undulating grass land at an altitude of about 6,000 feet.

August 21.—From Kiu Camp to Bondoni is a distance of about 11½ miles. Leaving the camp there is a stiff ascent to the ridge beyond, followed by another long descent into a valley, and an equally stiff pull out of this again. Thence, however, to Bondoni, with the exception of two or three easy nullahs, the road runs over the open undultaing Athi plains, and presents no difficulties. Bondoni.

August 23.—From Bondoni to Lanjora the road continues over the Athi plains; but in two or three places the rises and falls are pretty long and stiff, especially rounding the shoulder of an isolated hill, and up to the cross roads, 2 miles from Lanjora. Although there is no water at the cross roads (13 miles from Bondoni) it was considered preferable to camp there, and send back miles for water, along a branch road leading to Machakos, than to marching this distance to the proper camping ground and having to retrace our steps again over these 2 miles (to the cross roads) in the morning. Lanjora.

August 24.—From the cross roads to the Athi River (main stream) is a distance of some 12½ miles and generally easy. At the foot of Ulu Kenia Hills there is a baddish nullah with deep sandy bottom, across which there is a heavy diagonal pull for oxen, followed at once by a long steady rise over the shoulder of Ulu Kenia Hill. From that point the road falls steadily to the Athi-ya-Mawe (Stony Athi) River bed. Athi River.

A rocky nullah bed is first crossed (about 10 miles) followed immediately by the stony Athi. Here lava boulders stick up in every direction on the road and prove considerable obstacles. The descent is steep with a sharp turn at the bottom, and the ascent the far side far from easy for heavy waggons.

For the next 2½ miles the road runs by a circuitous route over the grassy plain between the Stony Athi and the Athi River proper, known as the Athi Kiboko or Hippo Athi.

The crossing of the main river proved difficult, as the rough lava boulders under the water impeded the waggons every considerably.

August 26.—The march to the Kikuyu Forest, Camp Nairobi, is a long and tiring one of 16½ miles, so it was divided up into two.

On the afternoon of the 26th August an early start was made and some 7½ miles covered before dark. The first 2 miles is a heavy pull out of the river valley on to the plateau beyond, after which the road passes over a practically level plain.

August 27.—An early start was made the following morning and Nairobi Camp reached soon after 10. Nairobi.

For the first 5 miles there were no obstacles, then a small nullah was crossed, and the Nairobi River met with about 2½ miles further on. This caused considerable delay, owing to the rough nature of the bottom; but thence to the camp at the edge of the forest (1½ miles) is an easy ride.

August 28.—From Nairobi to Fort Smith, Kikuyu, a distance of 8 miles, it is a pretty steady pull up over undulating country. Then a ridge is reached overlooking that on which the fort is built, and a steep descent made into the valley between the two ridges. The rise from the bottom of the valley to the camping ground outside the fort is a very long and stiff one and extremely trying to oxen. Kikuyu.

Remarks.

During the dry season of the year (which may be taken as roughly from June to October) the grazing from Taru to the Voi River is very scarce, and again between Ndi Grazing.

and Mtato Andei what there is, is very inferior in quality, consisting for the greater part of long coarse dry grass. From this point, however, there is generally little difficulty in obtaining plenty of grazing for cattle. During the wet season of the year there is plenty of grazing across the Taru desert, and throughout the whole distance from the coast to Kikuyu.

Water. The difficulties of water have already been alluded to, in the dry seasons of the year. After heavy rain several of the long marches made without water between Maungu and Kenani, can be conveniently split up, as water is caught in rock pools between Ndi and the Tzavo, and the Tzavo and Kenani.

Waggons. Judging from an experience of five or six weeks it would appear that the heavy double waggons and General Service waggons are not as yet suited to the road between the coast and Kikuyu, except in certain parts, such as across the Athi plains They have never proved as satisfactory as the light Indian carts with their one pair of oxen, which have kept up admirably with the porters of the main body of the expedition. Owing to their great weight they require at least teams of ten and twelve oxen. To control teams of this size it is necessary that the drivers should be skilled men of considerable experience, in order to insure that a fair share of work should be done by each pair of oxen.

The Swahili is not naturally skilful in his management of cattle, and as a consequence it was generally found that he compelled the two rear pair of oxen to do the bulk of the work, whilst the three or four leading pairs seldom did more than half their proper share of it. The heavy drifts along the road, which have been referred to, form very considerable obstacles to waggons weighing close on 2 tons, inclusive of loads. The oxen often, apparently seeing the utter hopelessness of attempting to drag their heavy burdens up these, would make no serious effort until they heard the singing and felt the assistance of men in rear pushing the waggons and man-handling the wheels.

Road. Many of these drifts, especially in the vicinity of the Voi River and Derajani could be much improved with comparatively little labour, and it seems a pity that this should not be done, as they are sufficient to break the heart of cattle.

At present for the most part the road is merely a surface one to Kikuyu, the bush being cleared only, and few attemps made to reduce grades by a little light cutting.

Cattle. The oxen employed for the transport of the waggons consisted entirely of those belonging to the country, and came for the most part from Ukhambani. They are generally weedy, and still far from being fully trained for draught purposes. It is not unlikely that a team of eight well-trained Indian oxen would prove more satisfactory than a team of twelve local ones. On the other hand the great advantage of the local animal is his comparative low cost, and also that he requires no ration of grain, but merely subsists on the coarse grass picked up whilst grazing; their undoubted hardihood is proved by the fact that between Ndi and Kikuyu, a distance of over 220 miles, there was only a loss by death of six oxen out of a total of over 200, in spite of the heavy work done by them.

Fly. This small percentage of losses would also appear to prove that there is little to be feared in the dry season from the tsetse fly. In the wet season the mortality is generally considerably higher amongst cattle, the cause being usually put down to the greater prevalence of fly at that time of the year. It is not unlikely, however, that a fair proportion of the deaths, perhaps the majority, are due to the cattle eating poisonous herbs whilst grazing.

(Signed) H. H. AUSTIN, *Captain, R.E.*

Camp, Kikuyu, August 30, 1897.

Inclosure 3.

Memorandum on March of Indian Transport from Rail-head to Kikuyu (265 miles).

1. *Description of Carts.*—Twenty-five Indian carts were brought from Bombay. These were the ordinary two bullock Indian country carts. This description of cart was specially ordered, as the Bombay cart has a good deal of iron work, whereas the country cart has practically none, excepting the axle and iron tyres, all the parts being fastened together entirely by rope.

2. *Loads.*—Each cart carried approximately sixteen loads of 65 lbs. each, *i.e.*, eight loads of 520 lbs. per animal.

3. *Animals.*—Forty-eight bullocks and thirty-four water buffaloes were landed at Mombasa, and sent by train to Rail-head about 70 miles. Two animals were used for each cart.

4. *Casualties.*—The casualties on the road were as follows: bullocks, three died; buffaloes, seven died and three strayed and lost.

The cause of deaths was not ascertained except in the case of one bullock, which was found to have large abscesses on lungs and liver. Since leaving Mwani seven deaths occurred, the majority of which was probably due to the bad grazing at Mwani, as six cattle were taken ill one evening at that camp.

5. *Road.*—The road for the most part offered no serious difficulty to the progress of the carts. The worst parts of the road were the following:—

(*a.*) *Little Maungu to River Voie.*—Several drifts commencing about 2 miles short of the Voie.

(*b.*) *Ndi to River Tzavo.*—Four miles beyond Ndi, a drift with sandy bottom and steep sides.

(*c.*) *River Tzavo.*—Water, 2 to $2\frac{1}{2}$ feet deep.

(*d.*) *Kinani to Mtoto Ndi.*—In the last $1\frac{1}{2}$ miles short of Mtoto Ndi several small drifts occur, in one of which the road was partly washed away. The crossing of the stream is difficult, as both descent and ascent are steep and curving, and the bottom on for side is muddy.

(*e.*) *Mtoto Ndi to Derajani.*—In the last 3 miles are several bad drifts. Road crosses stream on rock bed.

(*f.*) *Derajani to River Mesongolany.*—Three bad drifts; stream crossing is fair.

(*g.*) *Mesongolany to Kibwezi.*—Last mile very rough (lava outcrop).

(*h.*) *Kibwezi to Makindo.*—First 6 miles very rough (lava outcrop).

(*i.*) *Kibaoni to Kyu.*—At about 5 miles from Kibaoni a drift occurs. Practically the remainder of the march is a steady up-hill pull, with several rather sharp corners. Total ascent 1,200 feet. Severe strain on cattle.

(*k.*) *Lanjora to River Athi.*—At about 5 miles a nullah crossing caused some delay owing to bad road and sandy bottom. The descent to the River Stony Athi is steep with boulders. The ascent is also steep.

(*l.*) *Nairobi to Kikuyu.*—Ascent with occasional dips till 1 mile from Kikuyu, when the road descends sharply for nearly half-a-mile to stream, and then ascends for another half-a-mile to Fort Smith.

6. *Breakages.*—One yoke broke; replaced by spare one.

One wooden axle-tree box broke; was repaired in camp.

No serious damage to the carts occurred. A few lashings shifted on account of the jolting; these were readjusted either on the road or on reaching camp. Owing to the lynch pins having been mislaid on board ship wire was used; this, of course, got cut through occasionally, but was easily replaced.

7. *Summary.*—The carts have kept pace with the caravan throughout, and have caused no delay. They were driven by the Sikhs, who thoroughly understood the work, and who had no difficulty in executing all repairs.

In a few of the bad descents owing to the carts having no brakes six to ten men were employed in keeping the carts from running down too fast, though as a general rule the cattle alone were sufficient. Likewise in one or two of the worst ascents a few men had to assist the animals.

At all ordinary drifts the carts were crossed singly, so as to guard against collisions in case of any cart upsetting. Two upsets occurred during the march, but no damage was done.

The buffaloes do not seem so suited to the country as the bullocks, as their percentage of deaths is greater. The scarcity of water in places and the heat seem to affect them more than the bullocks.

Grazing was never plentiful until after leaving Kibwezi. The cattle all along have been allowed 3 lbs. (occasionally 4 lbs.) of grain—grain, Indian corn, or beans.

Several long stages without water occur, which cannot be accomplished in one march. This difficulty was overcome by watering the cattle at 1 P.M. or 2 P.M. and marching at about 3 P.M., halting when too dark, and continuing the march early next morning.

The usual rate of marching was 2 miles an hour (though most of the bullocks could travel faster), but on two occasions, viz., Derajani to Mesongolany and the following march to Kibwezi, the rate was only 1 mile an hour. Any bad drifts such as that 4 miles beyond Ndi, or any long descent, *e.g.*, that short of Kikuyu, caused a delay of quite an hour.

The carts and cattle are at present in a thoroughly serviceable condition.

(Signed) N. A. MACDONALD, *Lieutenant*,
14th Sikhs.

Kikuyu, August 31, 1897.

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December 21, 1897. 21 Dec. 1897. TS Selected Foreign Office Files on Africa. The National Archives (Kew, United Kingdom). Nineteenth Century Collections Online. Web. 29 Apr. 2016.

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